



PATENT  
Attorney Docket No.: QUIG-1006USCIP

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
Richard Rosenbloom )  
U.S. Application No.: 10/045,790 ) Group Art Unit: 1617  
Filed: January 14, 2002 ) Examiner: Yong Soo Chong  
For: ORAL COMPOSITIONS AND )  
METHODS FOR THE )  
PREVENTION, REDUCTION )  
TREATMENT OF RADIATION )  
INJURY )

**DECLARATION OF WILLIAM H. MCBRIDE PURSUANT TO 37 C.F.R. § 1.132(e)**

Mail Stop RCE  
Director of Patents & Trademarks  
Washington, D.C. 20231

Sir

1. I, William H. McBride, hereby declare as follows:
2. I am the Vice-Chairman of Research in the Department of Radiation Oncology at the David Geffen School of Medicine of the University of California at Los Angeles (UCLA), Los Angeles, California. My detailed *curriculum vitae* is attached hereto as Exhibit A.
3. I have reviewed the specification, drawings and original claims of U.S. patent application no. 10/045,790, as well as the currently-pending claims of U.S. patent application no. 10/045,790, publication no. US 2003-0103954 A1 (hereinafter, "the '790 application"). I have also reviewed the Final Rejection mailed on March 13, 2007

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(hereinafter "the Final Rejection"), and the documents cited in the Final Rejection.

4. The type of damage caused by one or more of proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation (ionizing radiation) is significantly different from the type of damage caused by UV-A ultraviolet radiation, UV-B ultraviolet radiation or infrared radiation (non-ionizing radiation). This is most obvious in the case of individuals who are genetically susceptible to non-ionizing radiation. They are not particularly susceptible to ionizing radiation and vice-versa. As a result, a skilled person aware that a particular treatment that might protect against injuries due to any of UV-A ultraviolet radiation, UV-B ultraviolet radiation or infrared radiation would not draw the conclusion that the same treatment would be effective for an injury caused by one or more of proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation.

5. The location of an injury caused by exposure to non-ionizing radiation is also significantly different from the location of an injury caused by exposure to most forms of ionizing radiation since ionizing radiation, by virtue of its higher energy and lower wavelength, can better penetrate tissue, organs and bones of the body. Injury caused by exposure to non-ionizing radiation occurs primarily in the outermost layers of the skin. As a result, a skilled person aware of a particular treatment for exposure to non-ionizing radiation would not expect that administration of the treatment to any part of the body other than the outermost layers of the skin would be protective or that such administration would be effective against the deeper injuries caused by exposure to ionizing radiation.

6. It is my understanding that the Examiner relies on International Patent Publication no. WO 97/18817 (hereinafter "Kita"), in support of the conclusion that it would be obvious to combine vitamin D<sub>3</sub> with antioxidants, flavonoids, selenium and ginseng in an oral

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composition administered to a human for the purpose of preventing or treating injury due to one or more of proton, fluoroscopic, alpha, beta and gamma radiation (ionizing radiation).

7. Based on the disclosure of Kita a skilled person would not employ vitamin D<sub>3</sub> compounds for preventing injury due to any of proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation. This is because Kita teaches that vitamin D<sub>3</sub> compounds should be topically applied to provide protection against UV radiation because vitamin D<sub>3</sub> compounds absorb radiation having wavelengths of 240-290 nm. (See col. 1, lines 25-29, col. 6, lines 17-29 and col. 8, lines 49-62 of Kita). Skilled persons are aware that proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation do not have wavelengths in the range of 240-290 nm. Skilled persons would learn from Kita that vitamin D<sub>3</sub> compounds would not absorb any of proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation. Thus, skilled persons familiar with Kita would not consider vitamin D<sub>3</sub> compounds useful to provide protection against any of proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation.

8. It is my understanding that the Examiner relies on the indication in Kita at column 1, lines 42-44 that therapeutic vitamin D can be orally administered in support of the position that it would be obvious to orally administer vitamin D compounds for preventing injury due to proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation. A skilled person would not orally administer vitamin D compounds for preventing injury due to proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation on the basis of this statement in Kita for the reasons given below.

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9. The relevant portions of Kita relating to oral administration read as follows,

"...vitamin D<sub>3</sub>...[is] often used today for the treatment of patients suffering from rickets, osteomalacia, osteoporosis, osteitis, fibrosa, osteosclerosis and other bone diseases, malignant tumors such as breast and colon cancers, and skin disease such as psoriasis...Therapeutic vitamin D is administered orally or by injection,..."

Col. 1, lines 16-21 and 42-44 of Kita. A skilled person would not be motivated to orally administer vitamin D compounds such as vitamin D<sub>3</sub> for the purpose of preventing or treating radiation injury due to proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation based on this teaching of Kita since the injuries caused by these types of radiation are not among the indications listed in Kita for oral therapeutic administration of vitamin D.

10. It is my understanding that the Examiner relies on U.S. Patent no. 5,141,741 (hereinafter "Ishida et al.") in support of the conclusion that  $\alpha$ -lipoic acid and vitamins A, B, C, D, E, F, K, P and U are known to be useful in the protection of human skin against UV radiation or as an anti-sunburn treatment in human skin. Ishida et al. describes an anti-sunburn skin care preparation which contains, as the ultraviolet-absorbing and shielding ingredient, a salt of ellagic acid with a polyvalent metal. Ishida et al. indicates that the polyvalent metal salt of ellagic acid is compounded in a skin care preparation (See col. 4, lines 57-60 of Ishida et al.).

11. Ishida et al. also indicates that,

Various ingredients in conventional skin-care preparations have [sic – having] no particular reactivity with the ellagic acid compound and can be used without limitations including...vitamins...Usable vitamins include

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vitamin A, vitamin B, vitamin C, vitamin D, vitamin E, vitamin F, vitamin K, vitamin P, vitamin U, ...  $\alpha$ -lipoic acid ... and derivatives thereof and the like.

(See col. 4, lines 62-65, col. 5, lines 2-3 and col. 5, line 65 to col. 6, line 1 of Ishida et al.). Thus, Ishida et al. teaches that  $\alpha$ -lipoic acid and various vitamins can be used to make a conventional skin care preparation in which the active ingredient of the Ishida et al. composition, namely, the polyvalent salt of ellagic acid, may be compounded.

12. A skilled person reading Ishida et al. would conclude that  $\alpha$ -lipoic acid and the listed vitamins are known to be useful in conventional skin care preparations. A skilled person would thus have no reason whatsoever to include these materials in an oral composition as in the present application since oral compositions are not skin care compositions and are not topically applied to the skin as are skin care compositions.

13. A skilled person reading Ishida et al. also would have no reason to expect that  $\alpha$ -lipoic acid or the listed vitamins would be useful for the prevention or treatment of any injury caused by proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation since Ishida et al. does provide any information that would indicate to a skilled person that these materials would be useful for this purpose and because skilled persons are not aware of any connection between skin care preparations and oral treatments for injury due to ionizing radiation.

14. It is my understanding that the Examiner relies on U.S. Patent no. 5,650,137 (hereinafter, "Nguyen et al.") in support of the conclusion that porphyrins such as chlorophyllin, used alone, are antioxidants and have protective effects to human skin including against UV radiation. Nguyen et al. appears to state that French patent

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application no. 2,693,904 discloses the use of chlorophyllins for restructuring skin and preventing aging of the skin (See col. 2, lines 12-14 of Nguyen et al.). Nguyen et al. also mentions that porphyrins can be combined with superoxide dismutase to synergistically reinforce the anti-free radical action of the superoxide dismutase (See col. 2, lines 4-9 and 20-27 of Nguyen et al.).

15. A skilled person reading Nguyen et al. would not conclude that chlorophyllin, used alone, would have protective effects against UV radiation. This is because Nguyen et al. do not indicate that chlorophyllin, used alone, has any effect in relation to UV radiation. In addition, a skilled person reading Nguyen et al. would have no indication that chlorophyllin could be used to prevent or treat injury caused by proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation since Nguyen et al. does not mention any of these types of radiation nor does Nguyen et al. contain any indication that chlorophyllin would be useful to treat an injury that would be caused by these types of radiation.

16. It is my understanding that the Examiner relies on U.S. patent no. 6,051,602 (hereinafter "Bissett") in support of the conclusion that a skilled person would have been motivated to employ flavonoids and flavonoid derivatives in a composition to be orally administered in a method for the treatment or reduction of radiation injury due to one or more of proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and... gamma radiation.

17. Bissett states that,

It has now been found that topical compositions containing select flavonoid compounds provide benefits in regulating skin condition [sic]... for example, such compositions regulated the signs of skin aging,

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especially visible and/or tactile discontinuities in skin texture associated with aged skin, including fine lines and wrinkles.

(See col. 1, lines 54-60 of Bissett). Skin aging is not an injury caused by one or more of proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation (ionizing radiation) and thus the skilled person would have no reason to employ flavonoids to treat or reduce injuries due to ionizing radiation.

18. Important to note is that Bissett specifically mentions two types of radiation that cause skin aging, namely, ultraviolet radiation and infrared radiation (see col. 1, lines 27-32 of Bissett), but does not mention any of the types of radiation that are claimed in the present patent application. This confirms that Bissett does not consider flavonoids useful for treatment of injuries due to one or more of proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation since Bissett elected not to mention any of these types of radiation among the several types of radiation that were expressly mentioned in Bissett as causing skin aging.

19. The fact that a human employing one or more of the topical compositions of the cited prior art for protection from ultraviolet radiation may potentially be exposed to some ionizing radiation in the course of their daily routine and is not injured, would not be sufficient evidence for a skilled person to draw the conclusion that the topical compositions were also effective to treat or prevent injuries due to ionizing radiation. Although some ionizing radiation is present in the environment, the environmental levels of such radiation are too low to cause any obvious radiation injury. Thus, unless it can be verified that a particular person was exposed to a significant dose of ionizing radiation from the environment, there is insufficient evidence for a skilled person to conclude that a particular topical composition employed for ultraviolet radiation

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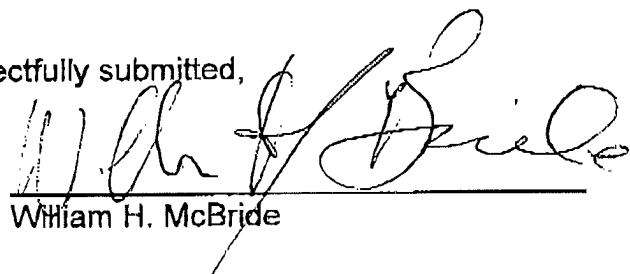
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protection would be effective for treatment of an injury due to one or more of proton radiation, fluoroscopic radiation, alpha radiation, beta radiation and gamma radiation. Indeed, because of the known physical differences between ionizing and non-ionizing types of radiation discussed above, a skilled person would not conclude that topical treatment agents employed for ultraviolet protection would be effective against ionizing radiation.

20. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that the statements were made with the knowledge that willful false statements and the like made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

By:

  
William H. McBride

Dated: 10/22/07

## CURRICULUM VITAE

NAME: WILLIAM H. McBRIDE

### **EDUCATION & DEGREES**

University of Edinburgh, Scotland,  
B.Sc. Zoology 1966  
Ph.D. 1971  
D.Sc. 1987

Royal College of Pathologists, London, England  
MRCPath. 1980  
FRCPath. 1990

### **PROFESSIONAL EXPERIENCE**

Department of Bacteriology, University of Edinburgh Medical School  
Edinburgh, Scotland

Lecturer 1971-1982  
Senior Lecturer 1982-1984

Departments of Radiotherapy & Experimental Radiotherapy, University of Texas,  
M.D. Anderson Cancer Center, Houston, Texas

Project Investigator 6/75-12/75  
Project Investigator 6/79-10/79  
Project Investigator 10/82-12/82

Dept. of Radiation Oncology, UCLA, Los Angeles, Ca  
Adjunct Professor 2/84- 6/87  
Professor 7/87-Present  
Division Chief 7/89-2/91, 6/94-Present  
Vice Chair, Research 7/95-Present

Health Sciences Department California State University Long Beach, California  
Adjunct Professor 8/91-12/2000

Laboratory of Experimental Radiotherapy, University of Leuven, Belgium  
Guest Professorship 1/04-Present

### MEMBERSHIP IN SCIENTIFIC SOCIETIES

American Association of Immunologists (until 2000)  
British Association for Cancer Research (until 1994)

British Society of Immunology (until 1994)  
Royal College of Pathologists, U.K. (until 1998)  
American Association for Cancer Research  
American Society Therapeutic Radiology and Oncology  
Jonsson Comprehensive Cancer Center  
Radiation Research Society  
European Society for Therapeutic Radiology and Oncology

## HONORS AND AWARDS

Failla Award for Outstanding Research, Radiation Research Society, 2003  
Honorary Membership, Austrian Society for Radiation Oncology, Radiation Biology and Medical Radiation Physics, 2003

## PROFESSIONAL ACTIVITIES

### **FORMAL TEACHING: 1970-1984 (Edinburgh, Scotland)**

Lecturer in Immunology, Cancer Biology and Medical Statistics. Courses taught on a regular basis included:

Medicine MBChB phase I Basic Science (8 h lectures, 12 h practicals p.a.; 150 students)

MBChB phase II Clinical Phase (1-2 h lectures; 150 students)

Internal medicine (1-2 h lectures; 60 students)

Sciences B.Sc. 3BH (6 h lectures, 12 h practicals; 30 students)

B.Sc. Hons (70 h lectures, seminars, tutorials; 6-12 students)

Biology 2 (20 h tutorials; 4 students)

Physiol Pharmacol (2 h lectures; 6 students)

Pathology Hons (3 h lectures or seminars; 12 students)

Zoology Hons (3 h lectures or seminars; 12 students)

Biochem Hons (5 h lectures or seminars; 12 students)

Basic Sciences (1-2 h lectures; 60 students)

Postgrad Immunol (4 h lectures; 50 students)

Dentistry BDS 4th year (1 h lecture, 2 h practicals; 40 students)

Technical HNC Bact (9 h lectures, 18 h practicals; 15 students)

FIMLT Bact (1-2 h lectures; 15 students)

MI Biol (8 h lectures, 6 h practicals; 6 students)

HNC Haematol (2 h lectures; 20 students)

## **SUPERVISION OF STUDENT RESEARCH**

## Undergraduate Student Projects

28 Honours B.Sc. thesis projects each 10 weeks duration, and 4 summer student projects each 12 weeks duration.

## Postgraduate Student Supervision

Primary supervisor of G. Dougherty, Ph.D.; Mr. D. Walkinshaw (FIMLS); Miss M. Robertson, M.Phil.

Secondary supervision of J. Strambachova, Ph.D.; P. Medina, Ph.D.; C. Cumming, Ph.D.; A. Ghaffer, Ph.D., A. McCrackin, Ph.D.

## Postdoctoral Supervision

K. Moore, Ph.D.; S. Howie, Ph.D.; J. Dawes, Ph.D.; G. Barrow, Ph.D.

## **FORMAL TEACHING: 1984-Present (UCLA)**

\*Organizer and Instructor

### Science Graduate and Undergraduate Courses

#### UCLA Biomedical Physics Graduate Program

\*BMEDPHYS #204, Introduction to Radiation Biology, 1984-Present

BMEDPHYS #221, Applied Health Physics, 1993, 1995-97, 2000-Present

\*BMEDPHYS #223, Advanced Radiation Biology, 2004 - Present

\*BMEDPHYS #596, Research in Biomedical Physics, 1990-Present

Pathology #M294/298C, Molecular Basis of Cancer, 1996-Present

BMEDPHYS #218, Radiologic Functional Anatomy, 1992 - 1994

Microbiology & Immunology #'s 184, 185, 186, 187, 199, 285E, 261, 1984-1991

Pathology #M293, Major Concepts in Oncology, 1990, 1994, 1995

Ethics and Accountability in Biomedical Research #M234, 1996 - 1997

Radiation Therapy Option, Cal State Long Beach #HSC 415, 1996 - 1998, 2000

### Medical Trainee Lectures

\*UCLA Radiation Oncology Residents Course in Radiobiology, 1984-Present

\*UCLA 2 day Teaching Course - The Radiobiology of Radiation Therapy, 2003 - present

UCLA Radiation Oncology #011, Clerkship for Medical Students, 1984-2000

UCLA Interactive Teaching Course (Cancer: Basing Treatment on Biology), 1993, 1994

UCLA Radiology Residents, 1997-2003

UCLA Surgical Oncology Seminar Series (occasional), 1984-1990, 2000

UCLA Pathology Grand Rounds, 1986, 2000

UCLA Radiation Oncology Grand Rounds, 1993, 1994

USC Residents Course, 1988

Cedars Sinai and Harbor General Hospital Surgical Oncology Basic Sciences, 1991-1993

### General Lectures

UCLA Radiation Safety Office Protection Seminars, 1993-2001

Lecturer at the 6th Annual UCLA Health Care Symposium, "Manipulating the Future: The Promise and Perils of the Genome Project, Winter 2002

### **SUPERVISION OF STUDENT RESEARCH (UCLA)**

#### M.S., M.A. and Ph.D. Committees, Completed

Biomathematics: Mr. Steve Lee, 2001

Biomedical Physics: Mr. Cameron Mitchell, 1986; Mr. Yeh-Chi Lo, 1989; Mr. Keiske Iwamoto, 1990; Mr. James O'Rear, 1992; Mr. Chi-Shiun; Chiang (Chair), 1992; Mr. David Cheng, 1993; Mr. Quiet Nube, 1994-2001; Mr. Ji-Hong Hong (Chair); 1995, Ms. Randi Syljuasen (Chair), 1996; Ms. Donna Trotter, 1997; Ms. Kali Fessenden, 1997; Ms. Randa Yee, 2000; Ms. Jennifer Daigle (Chair), 2001; Ms. Sacha Comden, 2003; Ms. Milena Pervan (Chair), 2004; Ms. Yu-Pei Liao (Chair), 2004; Ms. Azita Gilardi, 2004; Mr. Chun-Chieh Wang (Chair), 2005; Mr. Adam Kesner, 2006; Mr. James Brush, 2006; Ms. Tiffany Phillips (Chair), 2004-2007

Biostatistics: Mr. Dong Kim, 1992

Materials Science and Engineering: Mr. Qixin Huang, 1992

Microbiology & Immunology: Mr. M. Chang, 1989; Mr. F. Ramsdell, 1990; Mr. Iqbal Grewal, 1992

Microbiology & Molecular Genetics: Mr. Babak Moeinolmolki, 1998

Molecular Pharmacology: Mr. Eric Agdeppa, 2003

Pathology: Mr. Chih-Hung Lai, 2004

Surgical Oncology: Mr. M. Stene, 1990

University of Heidelberg: Ms. Katja Pajonk, 2000

Biomedical and Environmental Sciences and Associated Western Universities Summer Research Participation Program, UCLA: Mr. Edison McDaniels, 1985; Ms. Joan Etzell, 1986; Mr. Jeff Leftskin, 1987; Ms. Tina Hussain, 1988; Ms. Jeanne Hardy, 1991

#### M.S., M.A. and Ph.D. Committees, Current

Biomedical Physics: Tyson McDonald (Chair), 2005-Present; Mr. Kurt Hafer, 2006-Present; Ms. Julianne Pollard, 2006-Present

Molecular Toxicology: Ms. Cecelia Y. Chan, 2004-Present; Mr. Shareef Nahas, 2007-Present

Pathology & Lab Medicine: Mr. Kan Viah Lu, 2003-Present; Mr. Mitsuko Yamamoto, 2007-

Medicine: Ms. Eileen Heinrich, 2007-

UCLA Access Programs in the Molecular, Cellular and Integrative Sciences, effective 2/06 (currently no students)

Postdoctoral Supervision, Past

Vijaya Vegesna, Ph.D. 1984; David Fisher, Ph.D. 1986; Raphael Gorodetsky, Ph.D. 1987; Yeh-Chi Lo, Ph.D. 1989; Chi-Shiun Chiang, Ph.D. 1992; Ji-Rong Sun, M.D. 1991; Lisa Butterfield, Ph.D. 1994; Nelly Kuber, M.D. 1994, Steve Lee, M.D. 1994; David Gallardo, M.D. 1995; Barry Goy, M.D. 1996; Randi Syljuasen, Ph.D. 1996; Tri Do, M.D. 1997; Afshin Safra, M.D. 1998; Frank Pajonk, M.D. Ph.D. 1998; Jennifer Daigle, Ph.D. 2001; Milena Pervan, Ph.D. 2004; Evelyn Kachikwu, M.D., 2005; Tiffany Phillips, Ph.D. 2007

Postdoctoral Supervision, Current

Yu-Pei Liao, Ph.D. 2004; Dorthe Schaeue, Ph.D. 2004; Jennifer Gilman, Ph.D. 2006; Brian Yeah, M.D. 2007

UCLA Summer Research Elective Students and Volunteers, Visiting Scholars

Mr. Mark Fairhurst, 1985; Mr. Ken Shimizu, 1987; Ms. Lisa Chaiken, 1987; Ms. Leslie Martin, 1989; Mr. Ken Bergman, 1990; Mr. William King, 1990; Mr. Victor Schweitzer, 1991; Mr. Jack Haas, 1993; Mr. Brian Yee, 1993; Mr. Dan Hackman, 1995; Mr. Tom Guerrero, 1995; Ms. Capella Parish, 1995; Ms. Virginia Latham, 1995, 1996, Mr. Neil Trivedi, 1998; Dr. Wen-Cheng Chen (Visiting Scholar, Taiwan), 2000; Dr. Mi-Sook Kim (Visiting Scholar, Korea), 2000; Dr. Young-Taek Oh (Visiting Scholar, Korea); 2000 Dr. Jin Hee (Visiting Scholar, Korea), 2001; Ms. Katrin Riess (Junior Visiting Scholar, Germany), 2001; Ms. Judith Himmelsbach (Junior Visiting Scholar, Germany), 2002; Ms. Oriana DiCaro (Junior Visiting Scholar, Italy), 2004

UCLA Student Research Project (SRP) Supervision

Ms. Sian Comora, 1990; Mr. Andrew Kim, 1990; Mr. George Rankin, 1990; Mr. Scott Bisheff, 1991; Mr. Farid Javedanfar, 1991; Mr. Nathan Lane, 1991, 1992; Mr. Hoke Han, 1992; Ms. Gina Nahorai, 1993; Mr. Tony Scaduto, 1994; Mr. Farshid Sarkarati, 1994; Inez Cheng, 1996, 1977, 1998; Oscar Cheung, 1996, 1997; Leslie Tsang, 1997, 1999, Ms. Mary Sadeghi, 1999; Mr. Syed Saquib, 1999; Ms. Amie Huff, 2000, 2001; Ms. Tammy Chen, 2002; Ms. Grace Chen 2007

UCLA Biomedical Physics Program Faculty Advisor

1995-1996: Mr. Michael Campbell, Mr. John DeMarco

1997-1998: Ms. Jennifer Daigle; Mr. Anthony Danielle

1998-1999: Ms. Genevieve Wu

1999-2002: Ms. Yu-Pei Liao; Mr. Luis Selva  
2004 -2007: Ms. Caroline Brun

### **TEACHING OUTSIDE OF UCLA**

Stanford University and UC San Francisco Resident Teaching Course, San Francisco, CA, 4/97

North West Residents Training Program in Radiobiology, Edmonton, Alberta, Canada, 5/99

\*ASTRO Cellular and Molecular Radiobiology Meeting for Residents, San Diego, CA, 8/01

\*ASTRO Spring Meeting, Refresher Course Organizer and Presenter, Chicago, IL, 3/03, 4/05

\*Two-day Radiobiological Course to Radiation Oncology Taiwanese Residents, Taipei, Taiwan, 2004

Radiation Biology Refresher Course for Residents in Radiation Oncology, University of Maryland, Baltimore, Maryland 2005, 2006, 2007

\*University of Arizona Dept. Radiation Oncology 1 day resident teaching, 2006. 2007

\*ABRO/BVRO (Belgian Association for Radiotherapy and Oncology) Resident Teaching Course, 2004 - 2006

### **PROFESSIONAL ACTIVITIES - RESEARCH**

Research Grants: Major grants funding staff, equipment and running costs.

1971-1974 P.I., Cancer Research Campaign (G.B.).

"The Effects of Adjuvants on Immune Responses."

1974-1977 P.I., Cancer Research Campaign (G.B.).

"The Effect of C. Parvum on Anti-Tumor Responses."

1977-1980 P.I., Cancer Research Campaign (G.B.).

"Coats Around Tumor Cells."

1980-1983 P.I., Cancer Research Campaign (G.B.).

"Intratumoral Macrophages."

1982-1985 P.I., Cancer Research Campaign (G.B.).

"Intratumoral Immune Responses."

1984-1987 P.I., Medical Research Campaign (U.K.).

"The Role of Antigen-Presenting Cells in HSV Immunity & Recrudescence."

1985-1986 P.I., California Institute for Cancer Research, #C850965.

"Heterogeneity of Intratumoral Macrophages."

1986-1989 Co-Investigator with Dr. A. Cochran, National Institutes of Health,  
"Early Stages of Lymph Node Metastasis in Melanoma."

1987-1992 P.I., National Cancer Institute, #RO1 CA-44384.  
"Response of Brain to Irradiation."

1987-Present Section Head, National Cancer Institute, #T32 CA-09092-17.  
Biomedical Physics Graduate Research Training Grant.

1988 P.I., International Genetics Engineering, Inc. (Ingene), Santa Monica, CA,  
"Study of Cell-Mediate Responses of IL1-Treated Cancer Patients to  
Regressens."

1992-1995 P.I., National Cancer Institute, #RO1 CA-58993.  
"Cytokine-Directed Radioresistance."

1992-1993 Co-Investigator with Dr. H. R. Withers, UCLA Jonsson Cancer Center  
Foundation,  
"Methods to Quantify Metastatogenesis."

1992-1995 National Cancer Institute, #PO1 CA-59326 (Dr. J. Economou, P.I.).  
"Gene Therapy for Cancer." Project Leader, Project 2:  
"Tumor-Directed Gene Therapy."

1995-1998 National Cancer Institute, #PO1 CA-59326 (Dr. J. Economou, P.I.).  
"Gene Therapy in Cancer Research." Co-leader for Project 1 Animal Core,  
Vector Core, and Clinical Immunology Core.

1996-1997 Co-Investigator, Jonsson Comprehensive Cancer Center  
Foundation/UCLA Interdisciplinary Cancer Research Grant (Dr. M. Roth, P.I.).  
"Dendritic Cell Immunotherapy for Cancer."

1996-2000 P.I., National Cancer Institute, #RO1 CA-66605.  
"Molecular and Cellular Responses of Brain to Irradiation."

1997-1998 P.I., American Lung Association of Los Angeles County, #RG-009-L.  
"The Role of T Cells in Transplant-Related Pneumonitis."

1997-1998 P.I., Jonsson Cancer Center Foundation, #012476  
"Role of T Cells in Post Transplant Radiation Pneumonitis."

1999 P.I., Canji, Inc., San Diego, CA, #016265. Cooperative agreement to study

"The Effect on Tumor Growth In Vitro and In Vivo of Advp53 Gene Transduction in Conjunction With Radiation Therapy."

1997-2000 Co-P.I. with Dr. Mary Norval, NATO International Exchange Program Collaborative Research Grant,  
"The Effect of Ultraviolet Irradiation on Tumour Immunity."

1997-2007 Co-P.I. with Dr. James Economou, National Cancer Institute #K12 CA-76905.  
"UCLA Gene Medicine Training Program."

1997-2007 Co-P.I. with Dr. James Economou, National Cancer Institute #T32 CA-75956.  
"Clinical Scientist Training Program in Cancer Gene Medicine."

1998 Co-Investigator with Dr. Robert Sobol, P.I., SBIR, National Cancer Institute, #R43 CA-76854.  
"Radiation and IL-3 Gene Therapy of Prostate Cancer."

1998-2001 Co-P.I. with Dr. J. Economou, National Cancer Institute #R01 CA-77623.  
"Genetic Immunization for Hepatocellular Cancer."

1999 P.I., UCLA Dept. of Urology Carolan Seed Grant,  
"Combining Gene Therapy and Radioactive Seed Implantation for Treatment of Prostate Cancer."

2000-2002 P.I., U.S. Army, #PC991405,  
"Regulation of the Response to Radiotherapy and Hyperthermia in Prostate Cancer by the 26s Proteasome."

2000-2003 P.I., UCLA Henry Singleton Brain Cancer Research Program, Singleton Fellowship,  
"Modification of CNS Response to Radiation."

2001-2005 P.I., National Cancer Institute, #R01 CA-87887,  
"Effects of Heat and/or Radiation on Proteasome Function."

2001-2002 P.I., UCLA Human Gene Medicine Seed Grant,  
"IL-3 Gene Therapy for the Improvement of Radiation Therapy."

2002-2004 Co-Investigator with Dr. Sven DeVos, UCLA's Jonsson Cancer Center Foundation Clinical/Translational Research Grant,

"Proteasome Inhibitor PS-341 in the Treatment of Refractory Diffuse Large B Cell Lymphomas (DLBCL): Clinical Efficacy, Mechanisms of Resistance and New Models of Combination Therapy."

2003-2008 P.I., National Cancer Institute, #RO1 CA-101752,  
"Radiation Affects Tumor Antigen Presentation."

2004-2006 P.I., U.S. Army, #W81XWH-04-1-0126,  
"Radiation-Induced Immune Modulation in Prostate Cancer."

2004-2006 Co-Investigator with Drs. Sung-Cheng Huang and Jorge R. Barrio, UCLA  
ICMIC Development Grant,  
"Quantitative MicroPET Studies for Assessing the Response of Implanted Tumors  
to Irradiation: Linking Radiation Biology to Molecular Imaging with KIS."

2005-2010 P.I., National Institute of Allergy and Infectious Diseases, #1U19  
AI067769, Leader Project 2, Administrative Core, Education Core, Animal Core  
"UCLA Center for Biological Radioprotectors"

2006 P.I., Department of Energy, #DE-FG02-06ER64292,  
"Low Dose Radiation Effects Symposium."

2007-2010 PI, U.S. Army, #W81XWH-07-1-0135,  
"Radiation Effects on the Immune Response to Prostate Cancer."

## **PROFESSIONAL ACTIVITIES - OTHER**

### Invited Presentations Presented Outside UCLA

1. International Symposium on Immunological Reactions to Melanoma Antigens Hanover, West Germany, 4/74
2. Second International Congress of Immunology Workshop on Immunological Adjuvants, Brighton, U.K., 7/74
3. Ninth International Symposium of Reticuloendothelial Society Workshop on Adjuvants, FL, 12/75
4. Twelfth National Reticuloendothelial Society Symposium on the Macrophage and Cancer, Edinburgh, Scotland, 9/77
5. Scottish Immunology Group Symposium on Therapeutic Aspects of Immunology, Belfast, Ireland, 9/78
6. Second International Conference on Gynaecological Cancer on Immunotherapy of Cancer, Edinburgh, Scotland, 9/83
7. Second International Research Symposium on Cellular Oncology on Report on Workshop Dealing with Animal Models and Immune Factors, Palm Springs, CA, 12/85

8. Minnesota Medical School Continuing Education in Radiotherapy, 9/86 "Micrometastatic Disease and Gene Therapy for Cancer"
9. California Radiobiology Symposium, Newport Beach, CA, 11/88 "Peritoneal Adhesions as an Indicator of Late Responses to Radiation,"
10. Los Angeles Radiological Society Midwinter Oncology Meeting, Los Angeles, CA, 1/89 "Basic Concepts in Biological Response Modifiers,"
11. Radiation Therapy Oncology Group Semi-Annual Meeting, San Diego, CA, 1/89 "Growth Factors in Radiotherapy,"
12. Society of Leukocyte Biology Annual Meeting, Marco Island, FL, 10/89 "Regulation of TNF Production,"
13. 15th International UICC Meeting, Hamburg, Germany, 8/90 "Late Effects of Radiation on Gut,"
14. Annual Meeting of the Radiation Research Society, Salt Lake City, UT, 3/92 "Cytokines and Radiation,"
15. University of Nebraska, Omaha, NB, 12/92 "Approaches to Cytokine-Directed Gene Therapy,"
16. National Cancer Institute Gene Therapy Workshop, Washington, D.C., 3/93 "Gene Therapy for Cancer,"
17. Jackson Labs, Bar Harbor, ME, 3/93 "Cytokine-Directed Gene Therapy of Cancer,"
18. San Francisco Cancer Symposium, Frontiers in Radiation Therapy and Oncology, San Francisco, CA 3/93 "Radiobiology of Subclinical Disease,"
19. Radiation Research Society Annual Meeting, Dallas, TX, 3/93 "Cytokine Gene Expression and Radio- resistance,"
20. Terry Fox Lab, Vancouver, BC, 4/93 "Gene Therapy for Cancer,"
21. University of Edinburgh, Scotland, 9/93 "Cytokine Gene Therapy,"
22. Minnesota Medical School Continuing Education in Radiotherapy, 9/93 "Micrometastatic Disease and Gene Therapy for Cancer,"
23. American Association for Cancer Research Annual Meeting, Sunrise Session Speaker, San Francisco, CA 4/94 "The Biology of Radiation Oncology,"
24. Radiation Research Society Annual Meeting, Nashville, TN, 4/94 "Gene Therapy for Altering Tumor Micro- environments,"
25. European Society for Therapeutic Radiology and Oncology, Granada, Spain, 9/94 "Cytokines and Radiation,"
26. Application of Molecular Biology to Cancer Management Creative Concepts Conference, Vail, CO, 12/94 "The Molecular Basis for Tumor and Normal Tissue Radiosensitivity: Potential for Gene Engineering,"
27. Brain Tumor Symposium, Las Vegas, NV, 2/95 "The Role of Cytokines in Brain Irradiation,"
28. Radiation Therapy Oncology Group Semi-Annual Meeting, San Francisco, CA, 2/95 "Cytokines and Radiation,"
29. American Association for Cancer Research 86th Annual Meeting, Toronto, Canada, 3/95 "Potential for Genetic Radiotherapy,"
30. Oncovail Radiobiology Meeting, Vail, CO, 3/95 "Response of Brain to Irradiation,"

31. Radiation Research Society 43rd Annual Meeting, San Jose, CA, 4/95 "Gene Therapy - Promises and Limitations,"
32. 3rd Annual Workshop at Round Top on Therapeutic Response of Normal and Malignant Neural Tissues, TX, 4/95 "Molecular and Cellular Responses of Brain to Irradiation,"
33. National Cancer Institute Gene Therapy Program Meeting, Rockville, MD, 8/95 "Gene Therapy for Cancer,"
34. Second Radiation Oncology Conference, Gliwice, Poland, 9/95 "Molecular and Cellular Responses of the Brain to Irradiation,"
35. Fifth International Conference of Anticancer Research, Corfu, Greece, 10/95 "The Effects of Cytokine Gene Transfer into Tumors on Host Cell Infiltration and Regression,"
36. Fourth International Conference on Gene Therapy of Cancer, San Diego, CA, 11/95 "The Potential of Gene Therapy to Improve Radiotherapeutic Responses,"
37. 6th Int. Congress on Anticancer Research, Paris, France, 2/96 "Gene Radiotherapy of Cancer"
38. 6th Int. Congress on Anticancer Research, Paris, France, 2/96 "Molecular and Cellular Response of Brain to Radiotherapy,"
39. Canji, Inc., San Diego, CA, 2/96 "P53-Based Gene Therapy,"
40. Immune Response Corp., San Diego, CA, 2/96 "Gene Therapy for Tumor Radiosensitization,"
41. Annual Meeting of the American Radium Society, San Francisco, CA, 3/96 "Targeted Therapy Including Gene Therapy: Status and Prospects,"
42. Department of Energy Workshop, Denver, CO, 5/96 "Molecular Aspects of Metastasis,"
43. Onkologie Meeting, Vienna, Austria, 9/96 "Gene Therapy for Cancer Radiosensitization,"
44. Creative Concepts Conference, Vail, CO, 12/96 "Molecular Mechanism of Tumor Cell Metastasis,"
45. Minimally Invasive Therapy of the Brain Symposium, Century City, CA, 2/97 "Radiobiological Response of Brain to High Single Dose and Fractions of Irradiation,"
46. Cellular and Molecular Biology for the Radiation Oncologist Multidisciplinary Course,
47. Radiation Research Society Annual Meeting, RI, 5/97 "Cell Cycle in Radiation-Induced Apoptosis,"
48. Radiation Research Society Annual Meeting, RI, 5/97 "Response Of Normal Brain To Irradiation,"
49. Annual Round Top Workshop, Round Top TX, 5/97 "Combination of Gene Therapy with Immunotherapy for Cancer,"
50. Molecular Concepts in Radiation Oncology Gordon Conference, Plymouth State College, NH, 6/97 "Gene Therapy in Radiotherapy,"
51. American Lung Association of Los Angeles Annual Meeting, Long Beach, CA 6/97 "The Role of T Cells in Transplant-Related Pneumonitis,"

52. Brain Tumor Research Center, University of California, San Francisco, San Francisco, CA, 8/97 "Radiation and Gene Therapy for Cancer,"
53. Canji Corp., San Diego, CA, 9/97 "p53 Gene Therapy for Prostate Cancer,"
54. 5th International Conference on Dose, Time and Fractionation in Radiation Oncology, Madison, WI, 10/97 "Radiation-Induced Promotion and Gene Therapy,"
55. 39th Annual Meeting of ASTRO, Orlando, FL, 10/97 "Prospects for the Use of Gene Therapy with Radio-therapy,"
56. Department of Experimental Radiotherapy, M.D. Anderson Cancer Center, Houston, TX, 11/97 "Molecular and Cellular Responses of Brain to Irradiation,"
57. Role of New Predictive Medical Capabilities in Radiation Oncology Workshop, Vail, CO, 12/97 "Predicting Radiation Responses,"
58. H. Lee Moffitt Cancer Center Grand Rounds, Tampa, FL, 4/98 "Normal Tissue Injury from Radiation,
59. 6th International Meeting on Progress in Radio-Oncology, Salzburg, Austria, 5/98 "New Molecular and Genetic Approaches Aimed at Improving Radiation Therapy,"
60. University of California, San Francisco, Biophysics Seminar Series, San Francisco, CA, 5/98 "Gene Therapy Approaches for Enhancing the Efficacy of Radiation Therapy,"
61. 17th International Cancer Congress, Rio de Janeiro, Brazil, 8/98 "Generation of Anti-Tumor Immunity Using Dendritic Cells Genetically Modified to Express Tumor-Specific Antigen,"
62. Department of Radiation Oncology, Henry Ford Hospital, Detroit, MI, 9/98 "The Potential of Gene Therapy to Increase the Efficacy of Radiation Therapy for Cancer,"
63. 6th International Cancer Symposium, Korea Cancer Center Hospital, Seoul, Korea, 9/98 "Gene Therapy Approaches to Modifying Radiation-Induced Cell Death and Its Consequences,"
64. Neuro-Oncology Workshop, Los Angeles, CA, 10/98 "Animal Model for Radiation Damage to Brain,"
65. Varian Biosynergy, Inc.--Health Care 21st Century Meeting--The Future of Brachy-therapy, Vail, CO, 12/98 "The Radiobiology of Brachytherapy,"
66. Creative Concepts Conference, Vail, CO, 12/9 "The Genetics of Colon Carcinoma,"
67. 5th International Local Drug Delivery and Cardiovascular Course on Radiation and Molecular Strategies, Geneva, Switzerland, 1/99 "Effects of Radiation on Wound Healing,"
68. University of Minnesota Cancer Center Seminar Series, Minneapolis, MN, 2/99 "Integration of Biologic Agents into Radiotherapy,"
69. American Association for Cancer Research Annual Meeting, Philadelphia, PA, 4/99 "Integration of Biologic Agents into Radiotherapy,"
70. University of Edmonton, Cross Cancer Center, Grand Rounds Lecture, 7/99 "Integrating Gene Therapy into Radiation Therapy"

71. International Workshop on The Tumour Microenvironment, Univ. Ulster, Ireland, 7/99 "The Proteasome and Its Control of Tumor Responses to Therapy and the Microenvironment,"
72. University of Edinburgh, Scotland, 7/99 "The Use of Genetically Modified Dendritic Cells in Cancer Therapy,"
73. International Symposium on Radiation-Induced Lung Damage, Dresden, Germany, 7/99 "Do T Cells Have a Role in Radiation-Induced Pneumonitis?"
74. NIH Symposium on Organ Preservation for Squamous Cell Carcinomas of the Head and Neck, Bethesda, MD, 9/99 "Cytokines and Radiation Therapy" (Panel Discussion 4: Molecular Medicine/Immunology),
75. International Conference on Low-Level Radiation Injury and Medical Counter Measures, Bethesda, MD, 11/99 "NF- $\kappa$ B response to ionizing radiation exposure,"
76. Radiation Workshop at Round Top, Biology Based Combined Modality Radiotherapy, Round Top, TX, 4/00 "Cytokines and Growth Factors in Radiation Responses by Normal Tissues,"
77. Department of Biomedical Physics, University of Taiwan, Taipei, Taiwan, 5/00 "Integration of Biological Agents into Radiation Therapy,"
78. Department of Radiation Oncology, Chang Gung Memorial Hospital, Taipei, Taiwan, 5/00 "Biological Agents for Modification of Radiation Responses in Cancer Therapy,"
79. 5th Annual Joint Chinese Cancer Society Meeting, Taipei, Taiwan, 5/00 "Integration of Gene Therapy into Radiation Therapy,"
80. National Institute of Radiological Sciences Symposium on Recent Developments in the Therapeutic Gain of Radiotherapy, Chiba-shi, Japan, 7/00 "Gene Induction/Gene Therapy in Radiation Oncology,"
81. NCI Workshop on Modifying Normal Tissue Damage Post-Irradiation, Bethesda, MD, 9/00 "New and Old Concepts of Radiation Response,"
82. Dept. of Experimental Radiation Oncology, M.D. Anderson Cancer Center, "Potential Approaches for Translating the Cytotoxic Effects of Tumor Irradiation into Immunity," Houston, TX, 10/00
83. Radiation Therapy Oncology Group Translational Research Program Workshop, Tampa, FL, 2/01 "Proliferation and Genetics,"
84. Genstar, "IL3 Gene Therapy Combined with Radiation Therapy for Cancer," San Diego, CA, 4/01
85. Annual Meeting of the Radiation Research Society, Refresher Course Presenter, "Cytokines and Growth Factors in Radiation Responses," San Juan, Puerto Rico, 4/01
86. Department of Experimental Radiation Oncology, M.D. Anderson Cancer Center, "Role of the Proteasome in Cancer Biology and Treatment," Houston, TX, 4/01
87. ASTRO Cellular and Molecular Radiobiology Meeting, San Diego, CA, 8/01 "Cell Death and Survival,"
88. ASTRO Cellular and Molecular Radiobiology Meeting, San Diego, CA, 8/01 "Normal Tissue and Tumor Kinetics,"

89. Radiation Oncology Dept., Duke University, " The Proteasome in Cancer Biology and Treatment," Durham, North Carolina, 10/01
90. 10th Annual Radiation Workshop at Round Top, "Tumor Infiltration by Inflammatory Cells," Round Top, TX, 4/02
91. Radiation Research Society Annual Meeting, Symposium Speaker (Redox-Modulation of Protein Structure Symposium): "Is the Proteasome a Redox-Sensitive Target for Radiation and Other Stress Signals?" Reno, NV, 4/02
92. Department of Radiation Oncology, Radiological University Clinic, "Radiation Therapy in the Post Genomic Era," Freiburg, Germany, 5/02
93. 7th International Meeting on Progress in Radio-Oncology, "The Role of the Proteasome in Cancer Biology and Therapy," Salzburg, Austria, 5/02
94. Health Physics Society Annual Meeting, "The Future of Radiation as a Modality in the Era of the Genome," Tampa, FL, 6/02
95. First Congress of Polish Oncology, Invited Keynote Lecture Speaker: "Radiation Therapy in the Post-Genomic Era," Katowice, Poland, 9/02
96. International Symposium on Kinetics and Mechanisms of Repopulation during Radio-therapy: Biological Basis, Clinical Significance, Interventions, "Proliferation in Late Responding Normal Tissues," Dresden, Germany, 9/02
97. ABRO/BVRO (Belgian Association for Radiotherapy and Oncology) Brussels, Belgium, 1/03 "Cell Survival as a Determinant of Tumor Response,"
98. ABRO/BVRO (Belgian Association for Radiotherapy and Oncology) Brussels, Belgium, 1/03 "DNA Damage and Cell Killing,"
99. ABRO/BVRO (Belgian Association for Radiotherapy and Oncology) Brussels, Belgium, 1/03 "Radiation Response and Tolerance: The Volume Effect,"
100. ABRO/BVRO (Belgian Association for Radiotherapy and Oncology) Brussels, Belgium, 1/03 "Proliferation and Cellular Organisation of Normal Tissues,"
101. Second International Conference on Translational Research and Pre-Clinical Strategies in Radio-Oncology (ICTR2003), Invited Speaker: Forum on "Recent Advances in Gene Therapy," Lugano, Switzerland, 3/03
102. ASTRO Spring Meeting, Refresher Course Presenter, Chicago, 3/03 "Radiation-Induced Cell Death"
103. ASTRO Spring Meeting, Refresher Course Presenter, Chicago, 3/03 "Normal Tissue Responses to Radiation,"
104. 2nd ESTRO Workshop on Biology in Radiation Oncology, "Sensing Danger From Radiation," Nijmegen, The Netherlands, 6/03
105. RTOG Semi-Annual Meeting, Invited Organizer of Symposium and Speaker: "Molecular and Cellular Responses to Brain Irradiation" (Symposium on Normal Tissue Biologic Response Modifiers), Montreal, Canada, 6/03
106. Perspectives of Biological and Molecular Targeting In Radiation Oncology Workshop, Invited Speaker: "The Ubiquitin/Proteasome System in Cancer and Radiation Therapy" Dresden, Germany, 7/03
107. The 8th Taiwan Joint Cancer Conference 2003, Invited Speaker, "The Proteasome in Cancer Biology and Therapy," Taipei, Taiwan, 7/03

108. 12th International Congress of Radiation Research, Failla Award Lectureship: "The Sense of Danger from Radiation," 8/03
109. 45TH Annual Meeting of ASTRO, "Ionizing Radiation Affects Tumor Antigen Presentation by Dendritic Cells," Salt Lake City, UT, 10/03
110. Wolverhampton Medical School, U.K., "Proteasome in Cancer Biology and Therapy," 11/03
111. Medical Microbiology, University of Edinburgh Medical School, "Novel Vaccination Approaches," 11/03
112. Annual Meeting of the Austrian Radiotherapy Society (OGRO), Invited Speaker, "Intrinsic Tumor Radioresistance," Linz, Austria, 11/03
113. Environmental Toxicology Program, University of California, Riverside, "The Proteasome as a Sensor of Stress," Riverside, California, 2/04
114. Department of Radiation Oncology, University of Rochester, "Cytokine Cascades as Predictors for Radiation Late Effects," Rochester, NY, 5/04
115. American Statistical Association Conference on Radiation and Health Radiation in Realistic Environments: Interactions between Radiation and Other Risk Modifiers, "The Proteasome and Radiation," Beaver Creek, CO, 6/04
116. Pharmacology & Therapeutics Department, Roswell Park Cancer Institute "Radiation Effects Antigen Presentation to the Immune System," Buffalo, NY 9/04
117. 23rd Annual ESTRO Meeting, "The Proteasome as a Redox-Sensitive Target for Radiation Effects," Amsterdam, The Netherlands 10/04
118. BVRO/ABRO Meeting, Postel, Belgium 3/05 "Introduction to Radiobiology,"
119. BVRO/ABRO Meeting, Postel, Belgium 3/05 "Radiation Carcinogenesis and Protection,"
120. BVRO/ABRO Meeting, Postel, Belgium 3/05 "Life and Death Following Irradiation,"
121. BVRO/ABRO Meeting, Postel, Belgium 3/05 "Targeted Therapy and Radiation Therapy,"
122. BVRO/ABRO Meeting, Postel, Belgium 3/05 "Normal Tissue Tolerance,"
123. ASTRO Spring Refresher Course, IL, 4/05 "Effects of Radiation on Cell Cycle and Cell Death,"
124. ASTRO Spring Refresher Course, IL, 4/05 "Altered Fractionation Protocols: What's the Gain?" Chicago,
125. Department of Radiation Oncology, New York University School of Medicine, "Sense of Danger from Radiation," New York, NY, 4/05
126. Radiation Biology Refresher Course for Residents in Radiation Oncology, University of Maryland, Baltimore, Maryland, 4/05 "Normal Tissue Responses,"
127. Radiation Biology Refresher Course for Residents in Radiation Oncology, University of Maryland, Baltimore, Maryland, 4/05 "Cell, Tissue and Tumor Kinetics"
128. Dept. of Radiation Oncology, University of Arizona Cancer Center, Tucson, AZ, 6/05 "DNA Repair and the DNA Damage Response,"

129. Dept. of Radiation Oncology, University of Arizona Cancer Center, Tucson, AZ, 6/05 "Cell Cycle, Death, and Survival,"
130. 19th Meeting of the European Macrophage and Dendritic Cell Society, "Radiation Affects Antigen Processing by Dendritic Cells – A Novel Form of Immune Suppression," Amsterdam, The Netherlands, 10/05
131. University of Arkansas Cancer Research Center, "The Proteasome in Cancer Biology and Therapy," Little Rock, AR, 11/05
132. California State University Fresno, Undergraduate Biomedical Physics Program, "An Introduction to Radiation Biology," Fresno, CA, 4/06
133. Radiation Biology Course for Residents in Radiation Oncology, University of Maryland, Baltimore, Maryland, 4/06 "Normal Tissue Responses,"
134. Radiation Biology Course for Residents in Radiation Oncology, University of Maryland, Baltimore, Maryland, 4/06 "Cell, Tissue and Tumor Kinetics"
135. International Workshop on Non-Targeted and Non-Linear Effects of Ionizing Radiation "A Sense of Danger from Ionizing Radiation," Edinburgh, Scotland, 8/06
136. 25th ESTRO Annual Meeting, "Irradiation Slows Degradation of Proteins Through the Proteasome," Leipzig, Germany, 10/06
137. ASTRO Annual Meeting, Course Presenter, "Molecular Mechanisms of Cell Death: Apoptosis, Necrosis, Senescence and Radiotherapeutic Implications," Philadelphia, PA, 11/06
138. University of Texas, Division of Radiation Biology/Department of Radiation Oncology Seminar Series, "Radiation Affects the Rate of Protein Degradation," Dallas, TX, 1/07
139. Riverside State University. Nurses Symposium. 3/07 "Radiation Risk and Management Post 9/11".
140. Fred Hutchinson Cancer Research Center, "Cytokines in Normal Tissue Radiation Responses," Seattle, WA, 4/07
141. 10th International Wolfsberg Meeting, "The Proteasome in Radiation Responses," Ermatingen, Switzerland, 5/07
142. The First Symposium of The Association for Ion-beam Life Science Symposium on In Vivo Radiobiology in Cancer Research, Chiba, Japan, National Institute of Radiological Sciences 6/07 "Pro-inflammatory Responses in Normal Tissues Following Irradiation: Paradoxes and Opportunities"
143. National Institute of Radiological Sciences 6/07 "Progress in Radioprotectors."
144. CMCR Workshop 6/07, Bethesda, MD. "Paradoxes and Paradigms in Radioprotection."
145. 13th International Congress of Radiation Research, Presidential Symposium Presentation, "Radiation Affects on the Composition and Function of Immune Cells within the Tumor Microenvironment, San Francisco, CA, 7/07

## Conference Organizer

European Reticuloendothelial Society, Edinburgh, "The Macrophage and Cancer," 1977  
Scottish Immunology Group: "Genetics of Immune Responsiveness," Edinburgh, 1976  
Scottish Immunology Group: "Infection and Immunity," Sterling, Scotland, 1980  
Scottish Immunology Group: "Therapeutic Aspects of Immunology," Belfast, Ireland, 1980  
Scottish Immunology Group: "Immunology Update," Gorebridge, Scotland, 1981  
British Association for Cancer Research Annual Meeting, Edinburgh, Scotland, 1983  
Radiation Research Society Local Organizing Committee, Los Angeles, CA, 1985  
Southern California Radiobiology Society Meeting, UCLA 1986  
Southern California Radiobiology Society Meeting, UCLA 1990  
International Congress of Radiation Research, Symposium Organizer and Chair, "Growth Factors as Radiation Research Modifiers", Toronto, Canada, 1991  
Radiation Research Society Symposium Organizer, "Cytokines in Radiation Biology," Dallas, TX, 1993  
Radiation Research Society Workshop Co-Organizer, "Normal Tissue Effects of Irradiation," Dallas, TX, 1993  
American Society for Therapeutic Radiology and Oncology, Symposium Co-Organizer, "Cytokines and Radiotherapy" San Francisco, CA, 1994  
UCLA Annual Gene Therapy Symposium, Los Angeles, 1996-1999  
Radiation Research Society Workshop Organizer, "Gene Therapy Potential and Problems," Chicago, IL, 1996  
Radiation Research Society Workshop Organizer: "Defining the Role of Cytokines in Radiation Response," Louisville, 1998  
Round Top Meeting Co-Organizer of Meeting, "Growth Factors in Radiation," 1998  
Radiation Research Program, National Cancer Institute, Workshop Co-Organizer, "Modifying Normal Tissue Damage Post-Irradiation, Bethesda, 2000.  
American Society for Therapeutic Radiology and Oncology, "Cellular and Molecular Radiobiology Meeting," San Diego, CA, 2001  
Two-Day Resident Teaching Course, "The Radiobiology of Radiation Therapy," UCLA, Los Angeles, CA, 2003, 2005, 2006, 2007  
American Society for Therapeutic Radiology and Oncology, Spring Refresher Course, Invited Organizer & Presenter: Chicago, IL, 2003, 2004, 2005  
UCLA Center for Biological Radioprotectors, Riverside, 2006  
Radiation Research Society Annual Meeting, Philadelphia, 2006  
13th International Congress of Radiation Research, Presidential Symposium "Immunity and Radiation Therapy" 2007  
Rodney Withers Symposium in Radiation Research, UCLA, 2007

#### Editorial Boards

Cancer Immunology Immunotherapy, 1982-1992  
Immunology, 1982-1993  
Radiation Research, 1992-1996

Cancer Gene Therapy, 1995-Present

International Journal Radiation Oncology Biology Physics, 1995-1997, 1998-2000, 2001- 2003, 2003-2005

Occasional referee for papers to: Biotechniques, Blood, Cancer, Cancer Gene Therapy, Cancer Research, Clinical Cancer Research, Clinical Experimental Immunology, European Journal of Cancer, International Journal of Cancer, International Journal Radiation Oncology Biology Physics, Journal of Cell Biology, Journal of Cellular Immunology, Journal of Clinical Oncology Radiotherapy, Journal of Immunology, Journal of Immunotherapy, Journal of Laboratory Immunology, Metastasis Journal, Molecular Carcinogenesis, Nature, Radiation Oncology Investigations, Radiation Research, Radiotherapy and Oncology

#### Committee Work (Great Britain)

Scottish Immunology Group, Secretary, 1976-1982

Edinburgh Immunology Group, Secretary and Co-founder, 1976-1978

Postgraduate Immunology Course Committee, 1977-1981

Institute of Medical Laboratory Scientists Special Advisory Panel, 1977-1982

British Association Cancer Research Committee, 1981-1982

Departmental Radiation Safety Officer, Univ. of Edinburgh, 1970-1980

Departmental Computing Representative, Univ. Edinburgh, 1970-1984

Departmental Seminar Organizer, Univ. Edinburgh, 1972-1975

Departmental Staff-Student Liaison, Univ. Edinburgh, 1982-1984

#### Committee Work (UCLA)

Department of Radiation Oncology

Seminar Organizer, 1984-1994

Ad hoc Appointments Committee 1984-Present

Executive Committee 1998-Present

Residency Program Improvement Committee 2005-

Biomathematics Graduate Program

Advisory Committee, 1984-1992

Jonsson Comprehensive Cancer Center

Laboratory Safety Committee, 1990-1994

Clinical Research Advisory Committee, 1995-2000

Academic Senate

Council on Educational Development, 1990-1992

Committee on Academic Performance, 1991-1993

Faculty Grants Program Reviewer, 2004-2005

School of Medicine

SPAC Task Force on Space Management, 1992-1996

SPAC Committee on Research (Co-Chair), 1993-1995

Space Committee, 1998-1999

Honors Thesis Committee, 1989-1996  
Admissions Committee, 1994-1996  
Specialty Training and Advanced Research (STAR) Committee, 1995-1997  
Vivarium Committee, 1989-1994, 1996-2000  
Vivarium Planning Subcommittee, 1997  
Vivarium Faculty Advisory Committee (Chair), 1999-2000  
Subcommittee of Research Planning Committee, 1997  
Faculty Search Committee, Department of Pathology, 1999  
Faculty Search Committee, Division of Digestive Diseases, 2002  
Faculty Search Committee, Department of Radiation Oncology, 2004-Present  
Gene Medicine Program  
Co-Director 1995-Present  
Seed Grant Committee (Chair) 1995-1998, (Member) 1998-2004  
Executive Committee, 1998-Present  
Appointments Committee, 1998-Present  
Training Program Advisory Committee, 1998-Present  
Biomedical Physics Graduate Program  
Admissions Committee (Radiation Biology), 1993-2005  
Curriculum Committee (Chair) 1993-Present  
Transition Committee, 1993-1999  
Tri-Department Committee Chair, 1995-1996  
Faculty Advisor, 1996-2002  
Office of the Chancellor  
Vivaria Research Resources Advisory Committee, 2001-2003, 2005-Present  
Campus Faculty Vivarium Committee (Chair 2001-2003), 2001-2003  
Long-Term Vivarium Needs Committee (Chair 2002-2003), 2002-2003  
Chancellor's Animal Research Committee Member, 1/05-6/05  
Chancellor's Animal Research Committee Chair, 7/05-Present

#### Committee Work (Other)

International Congress of Radiation Research  
Program Committee, 9th International Congress of Radiation Research, 1991  
Program Committee, 13th International Congress of Radiation Research, 2005, 2007  
Radiation Research Society  
Education and Training Committee, 1997-2000, 2004-2006  
Program Committee, 1998-2000, 2003-2004  
Councilor at Large, 2000-2003  
Fry Award Committee (Chair), 2001  
Strategic Planning Committee, 2001  
Membership Committee, 2004-Present  
Journal Committee, 2005-2006  
Vice President-Elect, 2004  
President-Elect, 2005

President, 2006

American Society for Therapeutic Radiology and Oncology

- Cancer and Radiation Biology Committee, 1998-2001
- Annual Meeting Scientific Program Committee, 1999 - 2007
- Education Committee (Vice-Chair - Biology), 1999, 2000, 2001, 2002
- Abstract Reviewer, Annual Meeting and Program Committee, 1999-2007
- Board Member-at-Large, 2001-2005
- Targeted Radionuclide Therapy Task Force (TaRT), 2003-Present
- Government Relations NIH Subcommittee, 2003-Present
- Research Council (Vice-Chair), 2003-2005

University of California Cancer Research Coordinating Committee

- Steering Group Member and Policy Committee, 1998-2002

American Association for Cancer Research

- Radiobiology/Radiation Oncology Subcommittee of Program Committee (Co-Chair), 1998 - 2001
- Translational Radiation Oncology Working Group Steering Committee, 2000
- Program Committee, 2004-2005

Radiation Therapy Oncology Group

- Translational Research Program, 2000-2005

American Board of Radiology

- Radiation Oncology Written Exam Committee, 2001-Present
- Board Question Writing Committee, 2001-Present
- Ad-Hoc Committee to Revise Board Syllabus (Chair), 2002-2004

Council of Radiation Society Presidents

- Radiation Research Society Representative, 2004-Present

General Motors Cancer Research Foundation

- Kettering Selection Committee, 2005-2006

Grant Assessor and Reviewer (National/International)

National Institutes for Health/National Cancer Institute

- Pathology Study Group, 1980
- Cancer Research Manpower Review Committee, 1988-1993, 1995, 1996, 2002
- T32 and RO3 Grants Study Section, ad hoc, Washington, DC, 1997
- Radiation Study Section
  - Ad hoc, Washington, D.C., 1992, 1996
  - Permanent member 1997-2001
  - Chair, 2000-2002
- PO-1 Site Visit, San Francisco, 1993
- PO-1 Site Visit, Richmond, VA, 1996
- PO-1 Parent Committee, 1996
- PO-1 Site Visit, Richmond, VA, 1997
- PO-1 Site Visit, Duke University, Durham, NC, 1/98, 9/98
- PO-1 Site Visit, Virginia, 2001
- Site Visit, Radiation Branch of NCI, Washington, DC, 1997, 2001

PO-1 Site Visit, San Francisco, 2001  
PO-1 Grant Review Committee (via conference call), 10/2001  
SPORE Brain Grants Review Committee, 2002, 2004  
SPORE Head and Neck Grants Review Committee, 2002  
SPORE Skin Cancer Grants Review Committee, 2003  
SPORE GI Cancer Review Committee, 2003  
Bioshield NIAID Grant Review Committee (Chair), 2004  
S10 Instrument Grant Review Committee, 2005  
PO-1 Mutagenesis Review Cluster, 2005  
PO-1 Angiogenesis and Hypoxia Cluster, 2005  
NCI Program Project Parent Committee D, 7/2005-6/2008  
PO-1 Clinical Cluster Review, 01/2006  
Department of Health and Human Services  
Acute Radiation Syndrome Grant Review Panel, 2006  
PO-1 Clinical Studies Special Emphasis Review Panel, 02/2007  
PO-1 Clinical Studies Review Panel, 02/2007  
NIH NCI-F Training Review Committee, 03/2007  
PO-1 Clinical Studies Review Panel, 06/2007  
Department of Energy  
Postdoc Radiation Training Program (Chair), Washington, DC, 1996  
Site Visits, Chair, Postdoc Radiation Training Program, Pittsburgh, PA and  
Baltimore, MD, 1997  
Radiation Health Effects RFA (Chair), Washington, DC, 1997  
Department of Defense  
Breast Cancer Panel 2, Vienna, VA, 1997  
Prostate Cancer Exp. Therapeutics Panel, Vienna, VA, 1998  
CDMRP Grant Review Committee, 2005  
Alberta Cancer Board  
Site Visit Reviewer 1996  
Grant Reviewer 1999  
Medical Research Council (UK), 1980  
Medical Research Council of Australia, 1982-Present  
Anti-Cancer Council of Victoria, Australia, 1986-1997  
Radiological Society of North America,  
Research and Education Fund Reviewer, 1994-2006  
Fellowship Program Grant Reviewer, 1999-2006  
American Board of Radiology  
Examination Board, 1994-1995, 1998-Present  
Veterans Administration  
Ad hoc reviewer, 1998, 1999, 2000  
American Society for Therapeutic Radiology and Oncology  
Resident Grant Review Committee, 2004-Present  
National Cancer Institute of Canada  
Panel E Grant Review Committee, 2004-2006  
American Institute of Biological Sciences/U.S. Army Medical Research and Materiel

Command - Panel D Two: Anti-Radiation Drug Development/Tungsten Grant Review Committee, 2005

Grant Assessor and Reviewer (California and Local)

Veterans Administration

V.A. Hospital, Wadsworth Research Grant Assessor, 1989 (twice)  
Cedars Sinai Medical Center, Los Angeles, 1989, 1993  
University of California Cancer Research Coordinating Committee, 1993-1998  
UCLA AIDS Seed Grants, 1995-1996  
UCLA Human Gene Medicine Seed Grants, 1995-Present, Chair 1995-1998  
Jonsson Comprehensive Cancer Center Clinical/Translational Seed Grant Review Committee, 1996-2000  
UCLA Center for Biological Radioprotectors Pilot Grants 2006. 2007

External Program Advisor

University of Rochester Department of Radiation Oncology, New York, 1995-2005  
External Advisory Committee and Program Project Advisory Committee for Clinical/Experimental Radiation Research Interface Studies (CERRIS)  
UCSF Brain Tumor Research Center, University of California San Francisco, 1997 - 2005 External Program Advisory Committee  
Moffitt Cancer Center and Research Institute, Tampa, 1998  
Experimental radiation studies  
M.D. Anderson Tumor Institute, Houston Texas, 2000  
External Program Advisory Committee, Experimental Radiation Therapy  
Siteman Cancer Center, St. Louis, MO, 2000-Present  
External Advisory Committee Member  
The Lombardi Comprehensive Cancer Center, 2004-Present  
External Scientific Advisory Committee Member

External Consultant

Umm Al Qura University, Saudi Arabia, 1984  
Consultant immunologist for Medical Sciences and Medicine. Provided course outlines, lecture notes, practical notes, apparatus and chemicals, textbooks and references, audio-visuals, exam questions.  
Anhauser-Busch, St. Louis, 1986  
On yeast-derived biological response modifiers.  
Hygeia Pharmaceutical, San Diego, 1994  
On monoclonals in cancer therapy.  
Aganon Pharmaceutical, San Diego, 1994  
On DNA repair.  
Immune Response Corporation, San Diego, 1996  
On gene therapy approaches to cancer radiosensitization.

Canji Corp., San Diego, 1996

On p53-mediated gene therapy approaches to cancer radiosensitization.

Canji Corp., San Diego, 1997

On p53 gene therapy for prostate cancer.

Urogen, San Diego, 1997-2001

On IL-3 radiation studies.

Millenium Corp., Harvard, Minn., 1999

On PS-341 as a radiation sensitizer.

Pharmacyclics, Sunnyvale, CA, 1999-present

On Gd-Tex as a radiation sensitizer.

GenStar, San Diego, CA, 2001

External Advisory Board.

Hollis-Eden Pharmaceuticals, San Diego, 2002-Present

On radioprotectors.

University of Rochester School of Medicine, Rochester, NY, 2004-2005

On University's U19 submission "Centers for Medical

Countermeasures against Radiation."

Quigley Pharmaceuticals, Philadelphia, 2007 External Advisory Board.